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CRITICISMS AND DISCUSSIONS.

TRUTH AND NATURE.

I.

Of all the myriad idols which men have shaped them of their imaginings none stands forth so austere, so august, and so transcendently elusive as truth. We are wont to think of the human mind as demanding in the objects of its enthusiasms a certain concrete vividness, sense and emotion wrought upon in unison. And indeed, when we contemplate the long pageant of by-gone worships, we do find therein sensuous color and brilliancy: the pantheons of the nations, the symbols of cult and creed, are the ornate illumination of the scroll of mental history. Nevertheless, upon reflection, we perceive clearly that the showy outward appeals are no real clue to the enthusiasms they arouse. For these appeals are utterly impermanent, pantheon giving way to pantheon, symbol to symbol, with kaleidoscopic ease of mutation; but the motive which yields in turn to the sway of each, the zeal and veneration of the religious spirit, ever remains, unabated and unabashed through all the change. Surely this motive—able to withstand so oft-repeated overthrow of its dearest idols—must spring from an instinct deep-wrought in the human fibre; it must have its source in some perennial prepotency of man's disposition and its final reason in the laws of life and mind—aye, in the very essence of that Nature which has brought into being life and mind.

And obviously there is, through all the change, a constant factor. It is a factor without which the development of a super-brute intelligence must have been forever impossible, for it is the key and support of the building human mind. This factor is belief in truth. And I mean not merely belief in the truth of each seeming revelation as it comes,—not merely sincerity of faith, though this is an evident corollary. But what humanizes intelligence is belief in the worth of truth for its own sake; it is belief in true thinking

as the only possible mental equipment for successful living; and it is such belief as is ready at any time to reject a revelation that fails in the test of experience and to resume a doubting and troubled search for that fond of verity which, however unattained, will yet never suffer denial.

The strength of this belief may be estimated from the devotion inspired by its object. Love of truth is the greatest, as it is the least conscious, of man's passions. Not only is it displayed in just and temperate pursuit of knowledge, but often in blind and bloody defense of errors: for error is simulated truth and is cherished only because it presents itself in truth's guise; heretic and heretic-hunter are alike at least in honest zeal, and in our admiration for the noble courage of a Bruno, preferring death to a stain upon reason, we need not utterly condemn in his opponents the grim determination that their truth must prevail. "The soul," says Plato, "has a faculty of loving truth, and of doing all things for the sake of it." In the history of the world it would be difficult to find any ideal that has profoundly stirred men's minds which has not been regarded as a special and superior manifestation of truth: Crusades, Renaissance, Reformation, Enlightenment, each betokens a new and exalted devotion to belief, and the warring and proselytizing of sects and creeds, in philosophy, science and art as well as religion, are but recurrent testimony to the intensity of earnestness with which men sacrifice and die for their convictions.

Perhaps the extreme type of this devotion is to be found in the characteristically modern pursuit of knowledge for its own sake, in that purely intellectual zeal which is the apotheosis of curiosity. Curiosity is at root a utilitarian affection of mind; for, while it is easy to be perilously interested, on the whole an inquisitive prying into environment is the condition of healthy caution and wise adaptation. In the primitive stages of human history, where experience is all concrete and the problems are immediate needs, acquisition of knowledge is perforce mainly incidental to impulse and appetite. But a purely speculative interest in the "hang" and "go" of things is not tardy in developing: Bushmen paintings are more than highly naturalistic pleasurings of esthetic fancy; they are nature studies in a true modern sense, the product of a lively impersonal interest in environment. Now it is just the mastering of the "hang" and "go" of the world that makes human living so exceptionally efficient; men control nature by finding out her hidden catches and springs; to discover general rules is to capitalize experience and live

on its income, to have reserve funds in time of need. And herein lies the grounding in the laws of life for the development of such a mental trait as curiosity and such a function of mind as precise knowledge.

But the conception of knowledge as a mere instrument, as a condition of biologic well-being tending to preservation and survival, is a late achievement of reflection. It is only in its maturity that reason begins to understand and take into account its own motives and instincts;—indeed, the very essence of “instinct” is “rational impulse” with the “rational” element suppressed in consciousness for the economizing of energy. The instinct of curiosity is no exception. Hardly yet is it emerged from the impulsive stage, and we may view that type of mind in which it is at once most impulsive and most powerfully developed—the scientific mind, the mind eager for knowledge for the sake of knowledge,—as an extreme specialization of mental power for the good of the race: it is to this mind that we owe the profoundly practical and efficient body of knowledge which is coming more and more to guide sane human endeavor and it is from this mind that we derive that degree of supremacy over physical environment which promises to bring mankind to a hale and hearty age. In its elementary phases curiosity is apt to be intensely practical; its concerns are directly at hand; it answers to near needs. But in order that mind might attain a truly generalized dominion, in order that the instrument might be rendered efficient beyond the purview of the individual, so that the system of science should become a racial possession and benefit, it was necessary that there should arise in the individual an instinctive desire for knowledge beyond the scope of apparent utility; theoretic interest had to develop.

Doubtless if we could foresee the whole evolution of our species we should discover that this theoretic interest does as a matter of fact lead to purely practical results, that there is no such thing as useless science, that with race experience as the test the development of knowledge is conditioned by limited and exacting needs. But it is not nature's way to dissipate energies in her chosen tools: impulse sufficient to the deed is all that she vouchsafes; and so we do as a matter of fact find sprung up in the human mind an acute zeal for knowledge apart from any recognized utility, and correlative with this, in the sense of dignity and possession which knowledge gives, an inner sanction satisfying our emotional natures. The man of science may permit the popular journals to exploit the practical benefits of his work (for from showy benefits comes the

popular willingness to support his researches), but inwardly he feels a kind of impatience with such appeal; the utility of his work is felt to be a degradation of the finer sanction, viz., his sense of dignity as an unbiased seeker after truth: in his hierarchy the "pure" sciences are immeasurably exalted above the "applied," and he feels a certain pain when his theoretic investigations result in some practical good. "And the beauty of it, gentlemen, the beauty of it is that it is of no possible use to any one!" was the customary exclamation of a certain mathematician in one of our colleges, when, covered with chalk and beaming with gratification, he emerged from a successful demonstration.

Such is perhaps the ideal specialization of the scientific disposition. But it is contrary to nature (and to definition) that any human being should be an unalloyed scientist: there is always some spark—one might almost say, some saving grace—of human interest in his make-up; a degree of pity is compelled even for Mr. Wells's humorously grotesque Cavor in his last horror at finding his mind giving way at the bare spectacle of the insanely sane Selenites,—and the author does in good sooth show us the *reductio ad impossibile* of the scientific mood in his monstrous lunar ants. A development of this kind is revolting to our every sensibility; and just because it is the inevitable logic of our scientific ideal, it enforces upon us a consciousness of the necessary limitations of that ideal, and its need for supplementation.

As a rule the supplementation comes in the form of some ulterior interest, standing above the concreteness of scientific problems and dominating the whole mental life and attitude. Except in the most intellectual periods of history this interest has been religious—a reliance upon some superhuman humanity capable of justifying every devotion to truth. Such is, above all, the attitude of scholasticism, though it is also a general heritage of our mental history. Science and philosophy, where not consciously practical, are made ancillary to faith; the justification of the ways of God to man is the justification of reason; and a kind of cosmic morality is made the sufficient ground of being. But in certain periods, the great age of Athenian philosophy, the Renaissance, and especially the Nineteenth Century, religion itself has been subjected to the demand for justification; and the conception of Truth has been exalted above that of God or of the Good.

That truth, as a supreme and universal ideal, is capable of inspiring men to a veritable fervor of devotion, is the lesson of many

a biography. There is in its appeal something more than mere intellectual curiosity; there is a sacrificial zeal as well, and often a martyr-like resignation of the dearest of human hopes. A certain abnegation and abasement is characteristic of the modern scientific attitude; it owns a kind of shame for human yearnings and the errancy of a desire-driven soul; it humbles itself before the sense of its own attainment, and seems to derive a melancholy reverence from its contemplation of the majestic indifference of nature; with heroic fortitude it strives to quench every rising flicker of merely human animation, and with stoic pride struggles to convert the mind into an impassive recorder of outward being. Its faith is the most unselfish in the world—or, if it have any match, the cry of Job, "Though He slay me, yet will I trust Him," is its sole parallel.

But the unique and wonderful feature of this devotion is not so much its abnegation of human passion as the tremendous abstractness of its object. What ordinarily moves men's love or reverence is the concrete appeal of material beauty or moral grandeur. Truth, as an ideal, by its nature, of course, possesses neither of these; and although, in most systems of thought, beauty and goodness are made truth's predicates, this is but concession to the humanness of the systems' framers; indeed, it may almost be said that the difficulties of philosophy are but the inherent contradictoriness of this trinitarian dogma of the unity of the true, the good and the beautiful. By itself truth lacks moral and esthetic appeal; and, summing in itself all real and possible knowledge, it lacks, too, any concrete interest. It is, to be sure, derived from a vast number of concrete interests, and undoubtedly the fact that it holds these interests in implicit reference is what gives it its stable hold on men. But these implied interests do not in the least explain the emotional hold of the general conception: their nature, taken severally, is as practical or theoretical problems, deriving whatever penumbræ of emotion they may possess from appetitive need or the instinct of curiosity; and there is no incentive to martyrdom in all this. Even if the nature of the universe be the implied content of truth—as for the enlightened mind it is—there is yet no explanation of the emotional hold of the abstract idea. Men undoubtedly are stirred in imagination by their inner spectacle of the evolving world, but this is obviously an esthetic stimulation; and in any case it cannot account for the sharp summoning of the great idea of which it is but an incidental exposition. For the real cause of devotion to truth and its real

rationale in human nature, we must inquire beyond any mere play of feeling and imagery.

II.

The degree of abstractness wherein the conception of truth is still capable of inspiring devotion, and at the same time the clue to the reason for this devotion, are indicated in the celebrated passage of the *Phædrus*, where, in the one phrase, Plato describes truth as "colorless, formless, intangible," and yet as "the steersman of the soul." Truth is the "steersman of the soul"; truth is a guide, a director, a ruler of life; truth is the giver of human freedom and a creator of human destinies; truth is at once the expression of man's achievement, and the agent of his efficiency.

It is the tremendous rôle which the thinking of truths has played in the creation of man's humanity, the liberation of psychical life from its lock-step dependence upon the whip and spur of ever-varying sensation, it is this deed which has inwrought in man's mind his instinctive veneration for the ideal of knowledge. Truth is the steersman of the soul, and in a very near sense; for the body of our knowledge is the chart whereby we direct the course of life, and so determine the soul's development.

The emergence of a human from the multitude of brute species is the most wonderful fact of biological history; and the wonder of it lies almost solely in the appearance of that power of thought, the power of forming generalizations, general conceptions, which is distinctive of man. Man's humanness rests its case on the fact of his human mind. What is above all peculiar to that mind is its foresight; its faculty of abstracting the fixed and constant elements from the general evanescence of experience, and, by service of such abstractions, its power to predict the future. Prediction, foresight, enables preparation, preparation makes possible the realization of ideals.

To be sure in the lower animals, nature to a degree makes good the lack of rational foresight. Instinct is her agency, and in general we may say that, in the long development of mind, consciousness acquires stability and efficiency in two modes or forms, instinct and conception. Both of these come as generalizations of race experience, enforced and ingrained by the harsh contacts of unyielding environments, and both are means of surmounting the transiency of the moment-to-moment life. Instinct is the more primitive and essential. It is also the more narrow, condensed and specialized.

Bound close to the preservative and perpetuative activities, and so restricted by the peculiar forms and needs of the organism, it lacks adaptability and elasticity. Nevertheless, it represents a vast advance over the fickleness of consciousness confined to fleeting sensation and whim. An instinct is a kind of universal; it is a sign of a recurrent experience, its relative simplicity representing the multitude of details which the repetitions embrace. It is a race generalization, fixed only after myriad efforts and at a cost of myriad failures, and already it reveals glimmerings of prevision: the honey-maker stakes present toil for future joyance, the sentinel of the herd exchanges present gratification for future safety.

Instinct, then, evinces two of the characteristics of conception, universality and prevision. But it lacks the characteristic which must be added to make reason possible, mobility, the power to form varied and new combinations to suit varied and new situations. It lacks, in short, the power to represent the novel and to create the ideal. It is anchored so snugly to the concrete case that abstraction is impossible, and without abstraction there can be no freedom, no ideality.

Thus, the hugeness of the gap separating man as the reasoning animal from the rest of brute creation is warranted by the nature of reason itself; for between instinct and reason is all the difference between blindness and seeing, between servile subjection to ephemeral events and spiritual freedom in the realm of ideas. It is the nature of conception to represent to the mind that which is not present in sense; it is the nature of reason to combine conceptions to likenesses and uses not yet realized in experience. In this nature of reason is founded human freedom,—first realized in that mastery over nature which has enabled man to conquer the antagonisms of physical circumstance and adapt, not himself to environment, but environment to his own need and profit, so that he, alone of animals, is immutably himself in whatever zone or clime.

But of vastly more consequence than this physical mastery, is the spiritual independence which reason wins for him. The sole instrument and enablement of reason is the conception or idea. Reality is fixed in the matrix of time, forming an unalterably concrete series of haps and events no one of which may beg or borrow added period; gone, each is gone forever. But it is not so with ideas. It is their character and essence to bridge and conquer time. Their truth is the experience of yesterday and the prophecy of to-morrow. They serve, indeed, to create yesterday and to-morrow, for it is by

dint of ideas alone that the reach of life is expanded beyond the mere immediacy of appetitive existence. Abstracting from the passing flow of events what is typically and reiterantly significant, they lock these significances together in the form of universals, which are the counters of intellectual life and the foundation of all intelligent experience. Valid yesterday, to-day, and to-morrow, universal ideas form the truth,—the talisman opening the portals of all knowledge and giving consistency and worth to all enduring personality. Nor has the human mind been dull to their meaning, but from the very first it has beheld in them its divinities.

III.

The human mind has evolved. It has not sprung in fullness of strength and glory from the being of creative nature. Only through long generations, the long years of man's history and the vastly longer ages of his prehistory, has it gradually and painfully come to its own. The motive of this evolution is significant of the final meaning of intelligence. As we survey the mind's growth, we see that the process has been one of slow breaking away from the thrall-dom of sense.

To think—to form abstractions, to classify facts, to organize knowledge—is no light or easy achievement. The animal mind, even at its highest, in the apes, we believe to be absolutely dependent upon the sensations and perceptions of the moment. There may be animals capable of a very dim foresight, but at the best their reach of thought cannot extend beyond a few hours' duration, and the content of their thought can never transcend the particular. It is the perception or feeling of the moment, in all its concrete vividness, that absorbs consciousness; the present hunger or the present grateful satiety, the present bodily zest or the present drowsiness, these are meter and guide of the conscious life.

Now the primitive human mind—at its lowest—is advanced far beyond this stage. There are no men incapable of thinking the lapse of days and nights with the concurrent duration of things—no men, perhaps incapable of thinking time in those greater measures set by the phases of the moon or the annual recurrence of the seasons. And these standards, be it noted, are objective; they are no mere appetitive change, but observed alternations in nature. Further, they are observed as recurrences—the terms day, night, moon, winter, mean not merely the experience of light and hunger of this day, the gloom and drowsiness of this night, the waning of this moon, the dolor of

this season of snow, but they mean the constantly repeated like experiences in a man's life, days and winters past and to be. In other words, they are terms expressive of generalizations; they are terms by means of which man universalizes his knowledge; they are mental signs of truths of experience.

The progress of the human mind in its slow emancipation from the domination of sense is conspicuously shown in the emergence, in the history of thought, of the great principles of reason. At the very basis of nature's intelligibility lies the principle known to logic as the principle of identity. On this is based all our classificatory science, all our generalizations, all our abstract thinking, in fact all of that system which we interject into reality by means of language; for every word, every name, denotes some special aspect of nature, which is subject to repetition. It is because two things or events are alike that we are able to designate them by the one word. Similarities, likenesses, are the keys to our intellectual mastery of what Kant calls the "blind play," the "rhapsody," of undifferentiated sensation.

Now similarity or likeness is purely an ideal relation. It pertains to an apprehending mind, not to the bare fact of reality. Similarity implies an act of comparison, a measurement of one thing against another; an act which can be function of mind only. There are no likenesses in nature; likeness is not a quality of a thing or things, but a relation, established by mind, between things. And recognition of likenesses, identities, is the first great step to the conceptual mastery of nature. It is the beginning of the formation of that map, that mental diagram or scheme of things, which constitutes our notion of the world, and so constitutes our ideal of truth.

What it cost the human mind to attain this power of generalization through observation of similarities, is impressively shown by the long and painful mental effort through which freedom in the world of ideas has been won. Through many, many generations, through many, many centuries, man thought, as most men still think, only in concrete images. Myth, fable, allegory, were the normal and necessary vehicles of abstract ideas. A new abstraction formed, wrought as on an anvil in the white heat of experience, glowed with the hue and flare of embodied life, and so was heralded to the mind as a new deity in its great pantheon of ideas. The count of every primitive religion reveals its quota of hypostatized ideas: the Hindu *Dharma*, the divine Law, comparable to the *Logos* of Greek and Christian thought; the Greek *Charis*, *Themis*, *Nemesis*;

the Roman *Justitia*, *Fides*, *Bellona*; the Norse *Frith* and *Blith*. Most of these originated as attributes of some more primitive deity—a nature deity, as these are deities of society—the attribute being first personified as a special incarnation of this deity, and then, thanks to the mental clutch which personification gives, thrown off as independent members of the divine council. Thus *Zeus* is father of *Dike*, Justice; *Athena Nikephoros*, the bearer of victory, is transformed into *Nike*, the Winged Victory herself.

But the nature gods themselves illustrate the same development. They merely belong to an earlier stratum of abstractive thought. *Zeus* is the shining heavens, summarizing the light and orderliness of the world above; *Demeter* is the earth beneath, and *Kore*, her daughter, is the symbol of the vegetation of recurring years. These gods are abstractions of man's experience of elemental nature, forged as it were, by nature herself in his growing mind, to enable him to overleap the narrow boundaries of the moment and master days and seasons to come.

It is many generations beyond the mythic stage of thought—a stage we have not yet wholly outgrown—that the thinkers of our race begin to realize the true meaning of abstract thinking: how it is the functional rather than the material element that is significant for human life; that truth is measured by the mastery of natural destiny which truth yields.

The primitive organization of nature under mythic forms gives place to the conception of a universe governed by law and order. But what is this law and order? In reality, it is only a new mythology, a new truth. It serves our purpose better than the old; its basis is a greater range and duration of human experience. But its basis is nevertheless nought but human experience, and human experience taken in its unreal, in its ideal, intention. Scientific law is scientific truth. This is not to say that it is fact. It is a certain statement of fact,—fact generalized. It has correspondence with fact. But the correspondence is relative to signification, to the respect in which the facts are considered, hence to human intelligence and purpose.

Let us briefly consider this relationship of truth and fact.

We cannot ask of a fact if it be true, when we mean by "fact" the actual flow of phenomena in world history; a fact cannot be other than status or locus in the general course of events; fact is reality itself; and it would be meaningless to speak of reality as true or false. But ideas symbolize facts, and according as that symbolism is efficient or inefficient, we term them true or false. To be sure,

ideas may exist as psychical events without being either true or false; they may be neutral so long as they are not predicated of anything; but this is considering them apart from a thinking process, and it is doubtful if any idea is ever entertained apart from some possible judgment. And the faintest suggestion of use in judgment is a degree of truth-error already entered into the idea. An idea which is a possibility is tinged with truth; it points to some reality of which it is the truth and it begins to shape itself to the system or context in which that reality is conceived.

Manifestly, the only employment of ideas is as truth or falsehood; they are suggested predicates or they are mental lumber. But this is not saying that there is but one species of truth or falsehood open to them. As a matter of fact, there are myriad such; as many as we have worlds abuilding,—and the ordinary mind has a considerable number of these worlds, each formed of a group of concepts united by some center of interest, to some particular purpose,—and each, at least ostensibly, unrelated to its mates. Thus, we have the world of reality in numerous fairly disjunct aspects: as a world of every-day contacts, the limited one-man reality; as a world of social ideals, the communal world; as a world of beauty and ugliness; as a world of philosophical or scientific speculation, a cosmos; and we have besides as many fictive or romantic worlds as there are fictions or romances. The same ideas are judged true or false in these various worlds only in analogous senses; and as each world has its own governing conception, ideas enter in or are rejected in utterly different proportion. In each case the candidate for truth-positing is tested for its ability to fit into and bind together the general system of which it is to form a part, and while it necessarily modifies the conceptual whole to some extent, it is itself reacted upon by the sheers and strains of the total structure.

The scientific world of law and order no less than the mythic world of the wills of the gods is thus a creation of a point of view; it is a regard in which things are considered. As a system it stands out against nature, as a sort of key to nature; and it is by no means, as we are too wont to think, embodied in the being of reality. There is a great fission between thought and things, the one having its order in a hierarchy of ideal relationships, the other in the historic flow of events known to us only in sense-perception.

IV.

Perhaps I can bring home this ideal and relative character of scientific truth by illustration.

An interesting instance of that broadening of human powers of conception which I have been stating, centers about the notion of ether. The idea of ether doubtless originates with the mythic conception of the blue sky as the abode or embodiment of divinity,—“Zeus is Aether,” says Æschylus. And thence it passed into science through Aristotle’s notion of it as the substance of the higher empyrean, the realm of stars.

But its significance for modern physics dates mainly from the objection of Leibnitz to Newton’s theory of gravitation, that action at a distance is impossible and inconceivable. To meet the objection, ether, or an etheric fluid, was postulated as a medium for action by contact, that is, as a medium for the conveyance of gravitational forces. To-day the reverse of Leibnitz’s view is the more tenable. Lotze has shown that action by contact is, if anything, less conceivable than action at a distance, and indeed action at a distance is essential to the conception of force itself, and of gravitation. For gravitation is nothing more than the expression of a relation between two bodies separated in space. Simply stated, it is the rule that the acceleration of each of the bodies is proportional to the mass of the other, while the attractive force or tendency is inversely as the square of the distance. The word “force,” as applied to gravitation, means only a tendency to motion of a certain sort under certain conditions; and it is affirmed that this is universal. But under certain ideal conditions it could not be universal. For the force of gravitation is purely an attractive force, that is it is a tendency of motion of bodies toward one another. Now if it be conceived that this force is the only one in existence and further that it is operative only in the particles (mere centers of this force) composing the earth, then there would be one irresistible and ever accelerating tendency of all these particles toward the earth’s center of gravity, involving the ultimate shrinking of the globe to a mere punctual nothingness. The same mishap would occur, under like supposition, to a finite universe.

Of course such a *reductio ad absurdum* of gravitation is too far from the facts of reality to be more than idle speculation; there are repulsions as well as attractions to be taken into account; but at least it serves to emphasize the fact that human theories are built upon too narrow a range of phenomena, hold true of too limited a sphere of reality, to serve as a foundation for the prediction of cosmic destinies. Even in our own solar system it is not certain that gravitational attraction does not exceed the ratio expressed by the law, though by an infinitesimal fraction, as the sun is neared.

In emphasizing the limitation of scientific theory, scientific achievement is in no wise being brought into question. What is essential to be understood is that scientific thought is to-day in rapid evolution and that scientific knowledge is at best only an account of restricted fields of reality. A generation ago Mill held that the whole inquiry of natural science is for causes of phenomena; to-day physicists assert that the notion of cause has no place in their science at least. Time, space, mass are the categories under which physical phenomena may be conceived. Is it for a moment to be supposed that these can give an adequate account of this rich and varied world in which we dwell? The whole region of growth, vitality, consciousness, the visible, tangible, audible dimensions of creation, are yet to be taken into account.

For a quarter of a century philosophers have been examining and analyzing scientific conceptions with an assiduousness and interest proportional to the immense significance of their metaphysical bearings. The result of this investigation has been singularly unanimous. The body of scientific law is conceded to be a powerful instrument of knowledge, a veritable calculus of reality, but in no sense a photographic reproduction of reality; it is a mnemonic device for the assemblage of facts useful or calculable; it is not a narrative of creation. In consequence of this view, materialism,—the conception of the universe as an atomistic machine,—has been utterly discarded. It answers not the least demands of reason, accounts not for the most potent facts. In its place, idealism, in some form or other, holds general sway; and it is safe to assert that the doctrine of evolution with its attendant theories, has served no end more certainly than that of compelling the philosophic conclusion that purposive intelligence is the chief fact, the *Leitmotiv* of the universe.

Of course the philosopher, too, frames his opinion upon the meager basis of human experience. There is a temerity periling effrontery in any effort to infer the whence and whither of the cosmos from a span of experience at its utmost covering less than ten thousand recorded years, and in its free intelligence only a fraction of that time. But the philosopher at least has in his favor that he judges in accordance with instincts to which nature has indubitably given rise; he recognizes and considers those human values which for us are alone significant.

v.

Protagoras began his treatise on truth, "Man is the measure of all things." The history of the growth of knowledge since his day

only emphasizes the certainty of this aphorism. Our measure of the world is human science, and the measure of science is human intelligence,—in last resort the power of imagination. For imagination is not alone the solace of life; it is also, and above all else, the faculty which has lifted man above the time-serving brute, making possible his insight into the natural history of what lies behind the screen of sensation. Imagination is the power whereby we discover truth; it is the instrument by means of which we rear the wonderful structure of human knowledge, our parable of reality. Its potency measures possible science; its flexibility determines mental evolution. According to Herbert Spencer, conceivability, or as he puts it, the inconceivableness of the negative, is our final criterion of truth. Upon the mind's power to abstract and relate phenomena science is dependent, and with this power science is limited. John Stuart Mill, in comment, pointed out that human power of conception is not a static thing, that it expands from generation to generation,—the antipodes, inconceivable in the fifteenth century, are accepted as commonplace in the sixteenth,—and by reason of this expansion, continually broadens the mind's horizon, continually throws back the borderline of possibility. On the one hand is human impotence, the mind's abashment in the presence of the unknown, but on the other there is an energy of growth ever straining the leash of mortal circumstance.

"Man is the measure of all things." But man's is a changing, a growing nature. Ever he seeks to project this nature out into the cosmos which environs him, and ever he finds the cosmos growing with his own inner growth. The system of the sciences is continually enlarging and must continue to enlarge so long as there is growth of intelligence. The system of the sciences is our truth. And this is, of course, to say that truth is ever changing, ever growing. Truth is relative to human insight. It is nothing fixed in the being of the world of fact; it is only that ideal of this world which mind has found useful to mind's purpose.

And from this point of view we are warranted in criticising the conception of nature which commonly goes under the name of materialism or of mechanism,—the view, often called the scientific view of things, which asserts that our earth and our solar system are but a phase in the evolution of some primordial cloud of star dust, due in the tale of the ages to become star dust once again. From nebulae worlds are generated to be resolved once more to nebulae after running their course. Man's life is but an incident of this cosmic

process, it is meaninglessly generated to be as meaninglessly snuffed out; and the sole rôle of human intelligence is to evolve a knowledge of the uselessness and hopelessness of human life, while the acme of human dignity lies in the attainment of a sort of melancholy satisfaction in reviewing the grim spectacle of the cosmic æons.

It has ever been the cue of those who see in the cosmos a colossal machine grinding slow fatalities, to bid man to realization of his own weak, paltry, and precarious being; he is summoned to consider himself the helpless factotum of vain and foolish destinies in whose whim he must humbly acquiesce. This is but a new species of anthropomorphism,—man worshiping the shadow of his blinder self; for the conception thus raised up as the august antipode of human frailty is still a creation of the human mind, a part of the proper furniture of that conscious being which is summoned to abashment.

The conception of the life of the universe as consisting of cycles of blind evolutions followed by blind destructions is not a new conception. It is older than the despair of Buddha, and if in no just sense ascribable to Heraclitus, it is not to be distinguished from the conception which lay at the basis of the ascetic abnegation of the Stoics or that which issued in Proclus's ghastly theory of world degeneration. It *may* be that the conception is true. But the "may be," let it be understood, is merely an acknowledgment of human fallibility. It means only that our finite knowledge is incapable of conclusively gainsaying any possibility; it does not mean that the theory itself is, humanly speaking, probable or plausible.

For we must remember our premises. Truth is not the gist of reality, but our scheme of it, measured by our intelligence; and our nature and intelligence is ever-growing. If we know anything in this world it is the fact of growth—the fact of ever-receding limits to knowledge—the fact of never-ending imaginative conquests. Growth of mind is growth of imagination; growth of imagination is continuation of our mental conquest and absorption of nature. There is no ultimate or absolute truth so long as life is, nor is any final pronouncement of man's destiny possible so long as man is engaged in making his place in the world.

It is not unnatural, then, if we feel a certain grotesqueness in the contention of those whose business it is to be seers of truth, that, with the bourne of their imaginations reached, the fullness of human knowledge is in sight. To be sure, we concede a limit at which each individual imagination must balk further progress; but

that limit attained, it is not the part of an oft-vaunted scientific humility to challenge future insight. It is as were the imagination to come saying: "I am old. I am weak and worn. I can see no more. But I have conceived and brought forth my thought, the satiate truth. Beyond there is nothing."

It is little wonder that such a view should have led, through the contrariety of despair, to Nietzsche's barbaric laudation of man as the "great blond beast" overriding natural destinies. But it is wonder that it could ever so appeal to human rationality as to blind men to the evidences of intelligence in the world. Our own reason is an instance of this intelligence, and we are at least parcel of nature. Nor is there any contradiction of science in making,—nor any warrant of science which opposes,—the assertion of higher intelligence than ours in the universe, battling, with us, against night and chaos.

Furthermore, even in the mechanistic view of nature, there is an invariable, if often unwitting, insistence upon the human factor—the man-value of truth. In itself mechanism is the most monstrous of idolatries. It outrages every sentiment of the soul, every principle of the reason (though this is not saying that it may yet not be fact; if the world be chaos, reason is chaotic with the rest). In order to redeem it, the mechanist seeks to furbish it up with some aspect of human significance. The best of his conception is a sort of Overman,—one who has extinguished all the warmth of human feeling and desire, and in place of a destiny answering man's natural needs has set the chill ideal of impassive Intellect. But this, too, is human. *Man* after all is the measure; he alone is the unit of worth—he, the weak sport and victim of the colossal nightmare! If there are meanings, they are meanings for the human soul; if there are truths, they are truths of human destiny; if any value is, it is the creation of human experience. The intellectual value that is recognized is a product of dissection and mutilation—self-dissection, self-mutilation—but it is none the less part and parcel of man's being. The naive openness of the confession shows the faith of the mechanist the more appalling. One sees him precarious on the verge of realization; one trembles for the revelation that may shatter his trust. Helpless in the coils of his belief, already he begins to feel dimly the horror of it, the horror he has never dared to front, face to face. With the desperate old instincts of his soul he clutches still the humanhood for which his creed has no place, attesting still the

supreme worth of that spirit his philosophy must deny. Man, though mere mortality, about to die, he salutes.

VI.

Perhaps the wisest of the ancient sayings concerning truth is Plutarch's, "Truth is a striving after divinity." In what has preceded I have endeavored to show that truth belongs to the world of ideas and ideal relations—of human ideas, human thought.

But there is another world of Ideas—Plato's world of divine Ideas, the model and archetype of the visible universe. Human ideas, according to Plato, and human works, and indeed all the works of visible nature, are but imitations of these divine archetypes. They are but expressions of that dumb striving of all imperfect being after perfect being which Plato found to be motive **alike of the history** of mankind and the history of changing nature.

Nowadays we give Plato's thought a new interpretation. In the light of the doctrine of evolution we are once again brought face to face with a scheme of nature the motive of which is the striving of an imperfect after a perfect being. Through the long ages of geologic time we see species and genera and orders of life, at first embryonic in form, affording only a faint premonition of their eventual type, proceeding by devious and laborious paths to this type's realization. A striking example of this is shown in the development of that one of the orders of the mollusk class—the Cephalopoda, now only represented by the "many-chambered nautilus." Beginning far back in paleozoic times with genera of the type of the Orthoceras, preserved to us in the form of simple conical shells compartmentally divided, this branch developed through the ages; first, slightly curved forms; and then the more and more tightly coiled varieties with ever-increasing complexity of structure, which culminates in the Ammonites—coil contiguous upon coil. It was as if, through all those millions of years, nature had held before herself this ideal of beauty, to be consummated only through infinite experiment, infinite endeavor, infinite striving. Thus the wonder of the Ammonite is a part of the meaning of the Orthoceras, though the realization of this meaning was to be bought at a price of æons. So it is with every natural type. It is contained implicitly in its dim precursors, but only the long years can bring nature's thought to the surface.

Does not this mean intelligence, reason, plan in the universe? A truth like our truth in being ideal, in existing for the future toward

which like ours, it is ever reaching out? It means this, or our own truth is illusion.

And the human mind,—the human mind is itself a product of this striving growth. It is itself a part of the divine plan contained in that world of ideas, which forecasts evolutions. We as human animals are creatures of this creative nature.

Only—and here is the great fact—the end of our development is not its material form. Nature has not exhausted her gift to man in the creation of his body,—his physical vital history. She has given him mind. And it is the great function of mind to win for us freedom from the flux and flow of merely physical destinies. In attaining the ideal the mind becomes emancipated from the perishable world of things; it wins its freedom, as Spinoza puts it, in the world of ideas. Truth, then—our human truth, relative, mutable, ever imperfect, ever-growing,—is the means and symbol of the deliverance of the soul from merely mortal destinies. It is not for what truth pictures to us—the world idea it generates from generation to generation—that it has meaning, but for what truth does for us, that freeing of the spirit which can come only with ideals that lift us above the chance and circumstance of material time. “Truth is a striving after divinity”—that divinity which from the first man has found only in the world of his ideals.

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PRAGMATIC REALISM.

There has been a great deal of confusion in regard to terms in recent discussion. It may be well, therefore, to define, at the outset, what we mean by realism. A number of writers have called themselves realists and proposed to champion realism, when they are really indistinguishable from idealists. Here, at least, the Leibnizian law of indiscernibles ought to hold. If the terms realism and idealism are retained at all, they ought to stand for different concepts. It is hard to see how theories which strive to express reality in terms of a series of perspicuous or translucent states of consciousness can be called realism. This would surely make the shade of Berkeley wince. Leaving out all reference to the metaphysical stuff for the time being, realism means the reference to an object existing beyond the apperceptive unity of momentary individual consciousness, and that this object can make a difference to